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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/862,788	05/18/2001	Mark Ahmadjian	AFB00500	8998

7590

09/25/2003

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EXAMINER

KIM, AHSHIK

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 09/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/862,788

Applicant(s)

AHMADJIAN ET AL.

Examiner

Ahshik Kim

Art Unit

2876

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05/15/03 (RCE).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in  
5 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is  
eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)  
has been timely paid, the finality of the previous Office action has been withdrawn pursuant to  
37 CFR 1.114. Applicant's submission filed on May 13, 2003 has been entered.

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### *Amendment*

2. Pursuant to filing of continued examination, the amendment previously filed on March  
20, 2003 (Amendment After Final) has been entered. In the amendment, claim 1 was amended.  
Currently, claims 1-15 remain for examination.

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### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all  
obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in  
section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are  
such that the subject matter as a whole would have been obvious at the time the invention was made to a person  
having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the  
manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the  
25 claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various  
claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

- 5     5.     Claims 1-9 and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hill, Jr. et al. (US 5,850,285, previously cited) in view of Hasson (US 5,625,452, previously cited).

Re claims 1, 3, 6, 7, 11, 14, and 15, Hill teaches a rocket/aircraft exhaust plume detecting system (See abstract) comprising an electro-optical components 10 and 16, a filter 18 and a spectrometer 20 which detects spectral reference of the emission (col. 5, lines 35+). As further disclosed in the abstract, a particular wavelength (i.e., 0.2 – 200 microns) can be detected and captured. Hill further teaches that the system detects UV and IR frequencies (col. 3, lines 21+). Hill additionally discloses using amplifier (col. 4, line 29 – col. 5, line 5; col. 5, lines 45-57; col. 6, lines 34-46), which stimulates spectral reference of the emission, which in turn, would result in reducing noise (or background radiation).

Hill fails to specifically teach or fairly suggest the apparatus is mounted on above-flying or orbiting platform.

Hasson discloses a target acquisition system 10 including through clouds (see figure 3) utilizing target's electromagnetic spectrum. As shown in figure 3, the system can be installed in an airplane 102 (col. 2, lines 5+; col. 5, lines 59+). Hasson further teaches that the system detects emission lines of sodium (Na) and Potassium (K) by atomic line filters as described in claims 6 and 10

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In view of Hasson's teaching, it would have been obvious to an ordinary skill in the art at the time the invention was made to install the plume detector on airborne carrier to the teachings of Hill in order to efficiently collect the exhaust sample from the rocket/missile. Although Hill is silent as to where the system can be installed, it would have been obvious to one ordinary skill in the art to install such system where detecting and interrogating of the jet/rocket plume is efficient and most precise. Obviously, as shown by Hasson, installing such system airborne or satellite, the plume can be captured before it dissipates or diluted/contaminated by other particles in the air, and thus an obvious expedient.

Re claim 2, detectable wavelength of emission plume includes CO<sub>2</sub>, CO, NO<sub>2</sub>, H<sub>2</sub>O, and other atomic or ionic species (col. 5, lines 6+; col. 5, lines 22+).

Re claim 4, a use of a narrow band filter (col. 2, lines 54+) and a radiometric component (col. 4, lines 21) is also disclosed.

Re claims 5 and 13, Hill also discloses that the device is able to distinguish rocket/missile plume from a non-threatening or natural objects such as flair or cloud (col. 1, lines 45+).

Re claims 8 and 9, Although Hill does not use the term photometer, a detector/photomultiplier 22 measures the luminescence of an exhaust plume as shown in figure 2 (col. 3, lines 45-47)

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill, Jr. et al. (US 5,850,285) as modified by Hasson (US 5,625,452) as applied to claim 1 above, and further in view of Houlberg (US 6,072,571, previously cited). The teachings of Hill as modified by Hasson have been discussed above.

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Hill/Hasson fail to specifically teach or fairly suggest of utilizing GPS system to find the coordinate of the rocket/missile.

Houlberg teaches a system for tracking a target, which tracks a flight path of an object such as a missile and satellite (See abstract; col. 3, line 55 – col. 4, line 6) comprising the global positioning system 28 (col. 4, lines 46+).

In view of Houlberg's teaching, it would have been obvious to an ordinary skill in the art at the time the invention was made to incorporate an old and well-known GPS system to the teachings of Hasson/Houlberg in order to find the coordinates of the missile/rocket. GPS system is old and well known to one of ordinary skill in the art to track satellites, aircrafts and other objects, which warrants tracking. Accordingly, detecting and tracking airborne objects such as missiles and rockets are crucially important in testing or real environment. By accommodating GPS system to Hasson/Houlberg, a flying object can be identified, and the current location and the flight path of the object can be anticipated, and thus an obvious expedient.

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### ***Conclusion***

I. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Lieber et al. (US 5,220,164); Farmer (US 5,742,384) disclose spectral emission analysis and tracking systems.

20 II. Any inquiry concerning this communication or earlier communications from the examiner should be directed to *Ahshik Kim* whose telephone number is (703)305-5203 . The examiner can normally be reached between the hours of 6:00AM to 3:00PM Monday thru Friday.

25 If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G. Lee, can be reached on (703) 305-3503. The fax number directly to the Examiner is (703) 746-4782. The fax phone number for this Group is (703)308-7722, (703)308-7724, or (703)308-7382.

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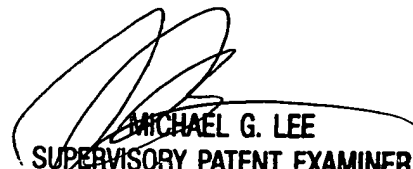
Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [ahshik.kim@uspto.gov].

*All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.*

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.



Ahshik Kim  
Patent Examiner  
Art Unit 2876  
September 4, 2003



MICHAEL G. LEE  
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